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COSMOS, MEDICINE, MAN

By

V. V. Parin

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COSMOS, MEDICINE, MAN

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COSMOS, MEDICINE, MAN

By

V. V. Parin

Four questions directed to prof. active member of the Academy of Medical Sciences USSR, V. V. Parin

Question: What is the characteristic trait of cosmic investigations, carried out in our country?

Reply: In the book dealing in the history of investigations of cosmic space have been written the first pages. Lustrous pages! but I would like to underline one thought; into the outline of victories is evident the basic trait of Soviet Sciences--strict planning and sequence of investigations. Our country gave the Earth its first satellite, to the solar system - the first man-made planet. From our blast off pads was launched into space a rocket, carrying the dog Layka - the first cosmonaut - on board. To the Moon was delivered a banner of the USSR - the first messenger of human reason. Soviet scientists were first to photograph the reverse side of the Moon. And in August of last year Byelka and Strelka dogs returned back to Earth. This was followed by the flight of the Soviet automatic station--first interplanetary ship. And finally, the fourth cosmic ship with dog Chernushka on board.

Question: Has been completed the analysis of data obtained during the flight of the second ship-satellite? Tell us, what new facts have these investigations given to medicine?

Reply: Only several years ago in solving medico-biological problems, connected with the mastering of cosmic space, scientists had no experience whatsoever. There were no labs, where theoretical conclusions could be checked and experiments could be car-

ried out. We stood before the doors of the unknown. Right now these doors are widely opened. New sciences-cosmic biology and medicine have come to being and established themselves firmly. Cosmic biology is closely connected with biophysics, biochemistry, physiology, aviation medicine and many other branches of science. This opens before new science practically unlimited possibilities.

Radical differences in the conditions of carrying out cosmic experiments from ordinary biological experiments led to the creation of specific investigation methods. The physiologist is accustomed to work in direct closeness to the object of investigation. This offers the possibility of interfering in the course of the process, to eliminate small disorders in the apparatus etc.

All this is now removed from cosmic biology. From the moment an animal has been placed in a pressurized cabin, the only possibility of observing same is the transmission to ground stations of observations of specific physiological parameters using the aid of telemetry. If we should take under consideration, that for such an experiments it is necessary to consider each gram of weight, to reduce to a minimum the overall dimensions of necessary devices and economize on electric power fed to the instruments, then it can be easily imagined, how difficult are the problems confronting the scientists and constructors in the creation of such equipment.

And so, when flying beyond the terrestrial atmosphere biologists were confronted with a series of unusual, in intensity or in qualitative characteristics, factors which are harmful for the organism.

Above all weightlessness. There were risks, that weightlessness will cause serious complications into the living conditions in the interior of the ship: there will be no convection interchange of air, because there is no difference in the weight of the exhaled air warmed up at the time of remaining in the lungs in comparison with the weight of air in the cabin, there is a sharp disruption in heat exchange between the cabin and the surrounding cosmic space. We had already accumulated certain data, particularly data of aviation physiology. For example, the state of weightlessness

can be obtained at the time of parabolic flights on high speed aircraft. But such a flight lasts only for several tens of seconds. And so far the only experiments on lasting state of weightlessness were the flight by Layka, Byelka, Strelka and Chermushka (dogs). We can already now assume that for man's flight into the cosmos weightlessness represents no danger.

The creation of the second and fourth ships-satellites, which safely returned to Earth, is the adherence to the conditions necessary for normal life, as well as larger dimensions of the "living space" placed to the disposal of biologists, gave the possibility of changing over to a qualitatively new stage of development of cosmic biology and medicine.

Scientists are receiving interesting data on the effect of unusual irritants on the living organism: shrill noise of rocket engines, vibration of ship's body, overloads etc.

Question: What is the effect of cosmic flight conditions on the higher nervous activity?

Reply: In the West much is being written now about the psychic state of humans carrying out flights in the cosmos. I would like to mention one such case. The American submarine made a long voyage submerged under Arctic ice. The condition of the crew was very depressed. As reported by western newspapers, they were saved by motion picture films from going berserk, particularly films of erotic content... And now western scientists are intensively developing systems for distracting crews of future cosmic ship, to distract its attention from the monotony, which we can now hardly imagine. We will leave now these sorrow-psychologists. Their views are foreign to us, soviet people.

Even if in the first cosmic ships man will fly alone he will not be lonesome! By invisible threads he will be connected with the Earth, with people, who with great interest are following his flight.

Question: Why are dogs employed preferably in the role of experimental animals in cosmic investigations ?

Reply: I have been asked this question many times. Why dogs, and not monkeys ? It is known that monkeys in their development are on a much higher level. But there is an unsurmountable difficulty in experimenting with monkeys, they do not satisfy the researcher with their low, if it can be said that way, experimentation ability. They are restless, tear off the equipment, become easily excited. In order, for example, to measure the blood pressure in them, it is necessary to have an iron cage with moveable wall. Blood for analysis can be taken in one case only; to clamp the monkey between walls so that it could not budge. But in such a case no one can think of correctness of measurements, because the animal is very excited.

Entirely different is the handling of dogs. They adopt themselves very rapidly to the experiment and experimenter and their attachment to man is limitless. They remain calm under the most difficult experiments.

We are standing at the threshold of cosmic flights. But man will be dispatched into cosmic space on the first journey around the Earth only then when we will be absolutely sure in the safe outcome of the experiment, when the upper layers of the atmosphere will be thoroughly investigated.

From the launching pads of the Earth into the cosmos will be blasted off cosmic ships. They will be guided by cosmonauts (astronauts)- people, mastering the universe.

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